

EMERGENCY AIRWORTHINESS DIRECTIVE



Aircraft Certification Service
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DATE: September 18, 2002
AD #: 2002-19-51 R1

Transmitted as follows is emergency airworthiness directive (AD) 2002-19-51 R1, for the attention of all owners and operators of all Boeing Model 737 series airplanes.

Background

On September 13, 2002, the FAA issued AD 2002-19-51, applicable to all Boeing Model 737 series airplanes, to require, for certain airplanes, an inspection to determine whether flight control modules (FCM) having part number (P/N) 65-44891-7 with serial number (S/N) 8726 or greater (hereafter referred to as "suspect FCMs") are installed, and corrective actions if necessary. The corrective actions include replacing the suspect FCM(s) with a serviceable FCM(s) having P/N 65-44891-7 with a S/N less than 8726, and revising the FAA-approved Airplane Flight Manual (AFM) to include procedures for certain airplanes to identify failures of suspect FCMs before dispatch and to provide the flightcrew with operating procedures in the event of failure of an FCM in flight. The AD also requires certain operators to submit inspection findings to the FAA. That action was prompted by reports of failed FCMs, which resulted in sluggish response of the aileron, elevator, and rudder surfaces. The actions required by that AD are intended to prevent operation with one failed FCM, which could result in reduced controllability of the airplane, or with two failed FCMs, which could result in loss of control of the airplane.

Clarification of Affected Airplanes

Because of reports of some operators misinterpreting the applicability of AD 2002-19-51, we find that clarification is necessary. Operators should note that this AD affects all Boeing Model 737 series airplanes. Operators of Model 737-600, -700, -700C, -800, and -900 series airplanes, having line numbers 1136 through 1230 inclusive, are subject to all requirements of this AD. However, operators of all Model 737-100, -200, -200C, -300, 400, and -500 series airplanes; and Model 737-600, -700, -700C, -800, and -900 series airplanes, having line numbers other than 1136 through 1230 inclusive; are only required to adhere to paragraphs (j) and (k) of this AD (i.e., parts installation paragraphs) to ensure that spare replacement FCMs and compensators identified in those paragraphs are not installed on any Model 737 series airplane in the future. No change to this AD is necessary in this regard.

Actions Since Issuance of Previous Rule

Since the issuance of AD 2002-19-51, the FAA has approved an alternative method of compliance (AMOC) for the replacement required by paragraphs (d)(1), (d)(2), and (h) of that AD. The AMOC allows FCMs having P/Ns other than 65-44891-7 that are approved for installation on Boeing Model 737-600, -700, -700C, -800, and -900 series airplanes to be installed during the

replacements required by those paragraphs. In addition, we have determined that a suspect FCM can continue to be used once the compensator has been replaced with an airworthy compensator. Therefore, we have revised those paragraphs and paragraph (j) of this AD accordingly.

We also have determined that replacement of all suspect FCMs with airworthy FCMs terminates the requirements of paragraphs (e) through (g) of this AD. Therefore, we have revised paragraphs (c) and (d)(1) of this AD accordingly.

We also have revised paragraph (h) of this AD to state explicitly that suspect FCMs that fail during operation of the airplane must be replaced before further flight.

AD 2002-19-51 contains a typographical error in paragraph (k). That paragraph refers to "compensator having P/N 10-605603-3," which does not exist. The correct P/N of that compensator is "P/N 10-60560-3." In addition, the airplane manufacturer has provided us with the specific S/Ns (i.e., 20478A or greater) of the suspect compensator, P/N 10-60560-3. Therefore, we have revised paragraph (k) of this AD accordingly to prohibit installation of only these S/Ns. We also clarified that unairworthy compensators cannot be installed on any FCM.

Explanation of the Requirements of the Rule

Since an unsafe condition has been identified that is likely to exist or develop on other airplanes of this same type design, this airworthiness directive revises AD 2002-19-51 to continue to require, for certain airplanes, an inspection to determine the S/N of the FCMs having P/N 65-44891-7 and corrective actions if necessary. This AD also continues to require certain operators to submit inspection findings to Boeing. This AD revises the existing AD to provide operators with additional options for compliance, to specify the serial numbers of the affected compensator, and to make other editorial changes.

Interim Action

This is considered to be interim action until final action is identified, at which time the FAA may consider further rulemaking.

Determination of Rule's Effective Date

Since a situation exists that requires the immediate adoption of this regulation, it is found that notice and opportunity for prior public comment hereon are impracticable, and that good cause exists for making this AD effective in less than 30 days.

This rule is issued under 49 U.S.C. Section 44701 (formerly section 601 of the Federal Aviation Act of 1958) pursuant to the authority delegated to me by the Administrator, and is effective upon receipt of AD 2002-19-51.

2002-19-51 R1 BOEING: Docket No. 2002-NM-248-AD. Revises AD 2002-19-51.

Applicability: All Model 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -800, and -900 series airplanes; certificated in any category.

Note 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative

method of compliance in accordance with paragraph (l) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To prevent operation with one failed flight control module (FCM), which could result in reduced controllability of the airplane, or with two failed FCMs, which could result in loss of control of the airplane, accomplish the following:

Inspection

(a) For Model 737-600, -700, -700C, -800, and -900 series airplanes, having line numbers 1136 through 1230 inclusive: Before further flight after receipt of AD 2002-19-51, do an inspection to determine the serial number (S/N) of both FCMs having part number (P/N) 65-44891-7.

Neither FCM Has S/N 8726 or Greater

(b) If neither FCM has S/N 8726 or greater (hereafter referred to as a "suspect FCM"), no further action is required by this AD, except for the requirements specified in paragraphs (j) and (k) of this AD.

FCM(s) Has S/N 8726 or Greater

(c) If one FCM is a suspect FCM, the airplane may continue to be operated, but within 24 hours after accomplishing the inspection required by paragraph (a) of this AD, do the actions specified in paragraphs (e) through (g) of this AD. Replacement of the suspect FCM with an FCM identified in paragraph (c)(1), (c)(2), or (c)(3) of this AD terminates the requirements of paragraphs (e) through (g) of this AD.

(1) A serviceable FCM having P/N 65-44891-7 with a S/N less than 8726.

(2) A serviceable FCM having a P/N other than 65-44891-7 that is approved for installation on Boeing Model 737-600, -700, -700C, -800, and -900 series airplanes.

(3) A suspect FCM on which the compensator has been replaced with a serviceable compensator, approved for installation on FCM, P/N 65-44891-7, other than a compensator having P/N 10-60560-3 with S/N 20478A or greater.

(d) If both FCMs are suspect FCMs, do the actions specified in either paragraph (d)(1) or (d)(2) of this AD.

(1) Before further flight, replace one of the FCMs with an FCM identified in paragraph (c)(1), (c)(2), or (c)(3) of this AD. Thereafter, the airplane may continue to be operated, but within 24 hours after accomplishing the inspection required by paragraph (a) of this AD, do the actions specified in paragraphs (e) through (g) of this AD. Replacement of both suspect FCMs with FCMs identified in paragraph (c)(1), (c)(2), or (c)(3) of this AD terminates the requirements of paragraphs (e) through (g) of this AD.

(2) Before further flight, replace both FCMs with FCMs identified in paragraph (c)(1), (c)(2), or (c)(3) of this AD. Thereafter, no further action is required by this AD, except for the requirements specified in paragraphs (j) and (k) of this AD.

(e) If required by paragraph (c), (d)(1), or (m) of this AD: Revise the Normal Procedures Section of the FAA-approved Airplane Flight Manual (AFM) to include the following (this may be accomplished by inserting this AD into the AFM):

"Pre-Flight Flight Control Module (FCM) Checks:

These checks can be performed any time after the Electric Hydraulic Pump A and B Switches are positioned ON and prior to Engine Start. Ensure ground personnel are clear of all control surfaces. If Minimum Equipment List (MEL) dispatch with one or both autopilot channels inoperative is planned, it is acceptable not to perform the check on the inoperative channel(s).

Flight Control Switch Check

1. Ensure FLT CONTROL A & B switches are ON
2. FLT CONTROL A Switch OFF
 - Verify Flight Controls LOW PRESSURE Light illuminates within 2 seconds.
3. FLT CONTROL A Switch ON
 - Verify Flight Control LOW PRESSURE Light extinguishes.
4. FLT CONTROL B Switch OFF
 - Verify Flight Controls LOW PRESSURE Light illuminates within 2 seconds.
5. FLT CONTROL B Switch ON
 - Verify Flight Controls LOW PRESSURE Light extinguishes.

NOTE: Failure of the Flight Control LOW PRESSURE Light to illuminate within 2 seconds may indicate a failure of the related flight control module.

Autopilot Check

1. Ensure IRUs are in the NAV mode
2. A/P ENGAGE Switch CMD A
 - Wait 10 seconds, and verify light remains ON
3. Disengage A autopilot
4. A/P ENGAGE Switch CMD B
 - Wait 10 seconds, and verify light remains ON
5. Disengage B autopilot
6. To fail this test, one autopilot will fail to engage and the other will fail to stay engaged.

NOTE: Failure of the autopilots to engage as described in Step 6. may indicate a failure of a flight control module.

WARNING: If either Pre-Flight FCM Checks fails, do not takeoff until the failed module has been replaced."

(f) If required by paragraph (c), (d)(1), or (m) of this AD: Revise the Limitations Section of the FAA-approved AFM to include the following statement (this may be accomplished by inserting this AD into the AFM):

"If a flight control module (FCM), having P/N 65-44891-7 with S/N 8726 or greater is installed, the 'Pre-Flight Flight Control Module

(FCM) Checks' specified in the Normal Procedures of this AFM must be accomplished before each flight. If either Pre-Flight FCM Checks fails, do not takeoff until the failed module has been replaced. "

(g) If required by paragraph (c), (d)(1), or (m) of this AD: Revise the Non-Normal Procedures Section of the FAA-approved AFM to include the following (this may be accomplished by inserting this AD into the AFM):

"Flight Control Module (FCM) Failure:

Note: If the module fails in flight, neither A nor B autopilot will engage. Other indications include possible increase in flight control forces (similar to manual reversion) and possible yaw damper disengagement.

Failure of a second module in flight could result in serious degradation of airplane controllability, including high control forces.

If a failure is suspected in flight:

- Plan to land at the nearest suitable airport
 - Crosswind capability may be reduced
- Do not turn off any flight control switches
- Plan a flaps 15 landing
- Use VREF 15 + 5 or VREF ICE + 5"

Note 2: The Limitations, Non-Normal Procedures, and Normal Procedures specified by paragraphs (e) through (g) of this AD are required to be implemented only for airplanes on which suspect FCMs have been installed. However, individual pilots may operate other airplanes on which those suspect FCMs have not been installed, and that are not subject to those limitations and procedures. Therefore, to avoid any confusion or misunderstanding, it is important that airlines have communication mechanisms in place to ensure that pilots are aware, for each flight, whether the Limitations, Non-Normal Procedures, and Normal Procedures apply.

Failures Detected During "Flight Control Check"

(h) If any failure is detected during any "Pre-Flight Flight Control Module (FCM) Checks" specified in paragraph (e) of this AD, or during operation of the airplane, before further flight, replace the affected FCM with an FCM identified in paragraph (c)(1), (c)(2), or (c)(3) of this AD.

Reporting Requirement

(i) Submit a report of inspection findings to the Boeing Renton Airline Support Manager, Craig Blankenstein, 2925 South 112th Street, Seattle, Washington 98168; fax (206) 544-9698; at the applicable time specified in paragraph (i)(1) or (i)(2) of this AD. (The report must include the airplane line number and FCM P/N and S/N.) Information collection requirements contained in this AD have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.) and have been assigned OMB Control Number 2120-0056.

(1) For airplanes on which the inspection required by paragraph (a) of this AD is accomplished after receipt of AD 2002-19-51: Submit the report within 10 days after performing the inspection required by paragraph (a) of this AD.

(2) For airplanes on which the inspection required by paragraph (a) of this AD has been accomplished before receipt of AD 2002-19-51: Submit the report within 10 days after receipt of AD 2002-19-51.

Part Installation

(j) For all airplanes: After receipt of AD 2002-19-51, no person shall install an FCM having P/N 65-44891-7 with a S/N 8726 or greater, on any airplane, unless the compensator has been replaced with a compensator, approved for installation on FCM, P/N 65-44891-7, other than a compensator having P/N 10-60560-3 with S/N 20478A or greater.

(k) After receipt of AD 2002-19-51, no person shall install a compensator having P/N 10-60560-3 with S/N 20478A or greater, on any FCM.

Alternative Methods of Compliance

(l) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Seattle ACO.

Note 3: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Seattle ACO.

Special Flight Permits

(m) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished, provided that the airplane is operated per the requirements of paragraphs (e) through (g) of this AD, and that there are no known FCM failures upon dispatch.

Effective Date

(n) **AD 2002-19-51 R1, issued on September 18, 2002, becomes effective upon receipt.**

For further information contact: Kenneth W. Frey, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 227-2673; fax (425) 227-1181.

Issued in Renton, Washington, on September 18, 2002.

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